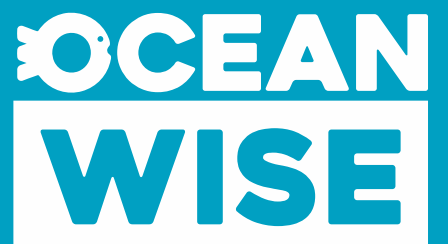




**WHALES INITIATIVE  
ANNUAL REPORT:  
NORTH COAST  
OCEAN WISE  
FEBURARY 2023**



The **North Coast Cetacean Research Initiative** is an Ocean Wise program supported by the Prince Rupert Port Authority, DP World, LNG Canada, as well as by Fisheries and Oceans Canada through the Coastline Environmental Baseline Program, the Habitat Stewardship Program for Species at Risk (HSP), and the Canada Fund for Aquatic Species at Risk (CFNSAR). Support was also provided by the Environmental Careers Organization of Canada (ECO Canada), and Canada Summer Jobs.

The **WhaleReport Alert System** is an Ocean Wise project supported by the Vancouver Fraser Port Authority, the Prince Rupert Port Authority, Fisheries and Oceans Canada, the Government of Canada, Quiet Sound, and the National Fish and Wildlife Foundation.

2022-2023 Report Prepared for:



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## EXPANDING ON A CRITICAL BODY OF KNOWLEDGE

### Executive Summary

The North Coast Cetacean Research Initiative (NCCRI) is a program under the Whales Initiative at Ocean Wise. Ocean Wise fills a critical knowledge gap by hosting a community-based cetacean program in Northern British Columbia, an area identified as biologically important for local whales, dolphins, and porpoises. Ocean Wise is entering its 9th year of monitoring cetacean populations in the region through a combination of field research and citizen science. This program conducts applied research projects to learn more about locally important species, develops tools to directly impact cetacean conservation, and engages the local community in learning about the marine environment and at-risk cetacean populations.

In 2022, highlights include:

- A peer-reviewed [publication](#) on harbour porpoise habitat use at the entrance to the Port of Prince Rupert.
- A successful summer field season documenting 158 individual humpback whales and collecting 78 targeted eDNA samples.
- 1,116 whale, dolphin, and porpoise sightings collected in the North Coast by citizen scientists, a 47 % increase since 2021.
- 1,555 people engaged through targeted outreach events in northern communities, a 23% increase since 2021.
- Marine mammal response training with DFO and coastal guardian watchmen

Through these activities, the NCCRI has sustained important relationships with industry, First Nations, educational institutions, environmental consulting groups, local non-profits, and members of the general public. The relationships built and the information gathered would not be possible without a permanent presence and a local face. Supporting this program has allowed for vital biological data to be gathered on local at-risk cetacean population dynamics and migration patterns for temporal baseline monitoring. In turn, this information is disseminated to northern communities and supports other coast-wide initiatives. This program also empowers the public to actively participate in marine research and conservation by encouraging participation in citizen science projects and inspiring them to taking action to reduce their impact.

In 2022, the NCCRI program continued to be housed in the Prince Rupert campus of the Coast Mountain College. Three full-time staff were employed: one contract research assistant, and one

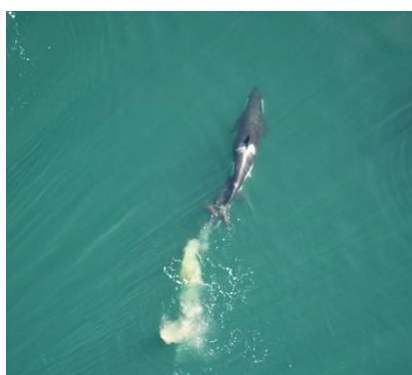


seasonal employee based in Haida Gwaii. During the year, one Ocean Bridge Youth Ambassador was mentored by the team.

The North Coast Cetacean Research Initiative was funded in 2022 by the Prince Rupert Port Authority, DP World, LNG Canada, as well as by Fisheries and Oceans Canada through the Coastline Environmental Baseline Program (EOFSCP), the Habitat Stewardship Program for Species at Risk (HSP), and the Canada Fund for Aquatic Species at Risk (CFNSAR).

This funding supports the continued presence and growth of this important conservation work in the North Coast. This report highlights the work completed from January 2022 to December 2022.

#### Ocean Wise – Whales Initiative



1. Fill data gaps for recovery documents and threat mitigation through influencing guidelines, policies, and regulations.

2. Reduce the impact of vessel disturbance such as marine noise, ship strike, and entanglement.

3. Establish non-invasive and efficient genetic sampling techniques for cetaceans.



## THE NORTH COAST CETACEAN RESEARCH INITIATIVE

### Field Research

The NCCRI team conducted a full field season during the summer of 2022. Beginning in June, the research vessel (RV) *Tsitika* was used as a platform to navigate waters around Prince Rupert, primarily in Chatham Sound and extending into Dixon Entrance and Eastern Hecate Strait until October (Figure 1). In 2022, over 36 days were logged on the water documenting cetacean sightings and behaviour, retrieving acoustic data, and collecting eDNA, biopsy and fecal samples. This information is used to inform our knowledge of seasonal cetacean abundance and distribution and supports several applied research projects discussed below.

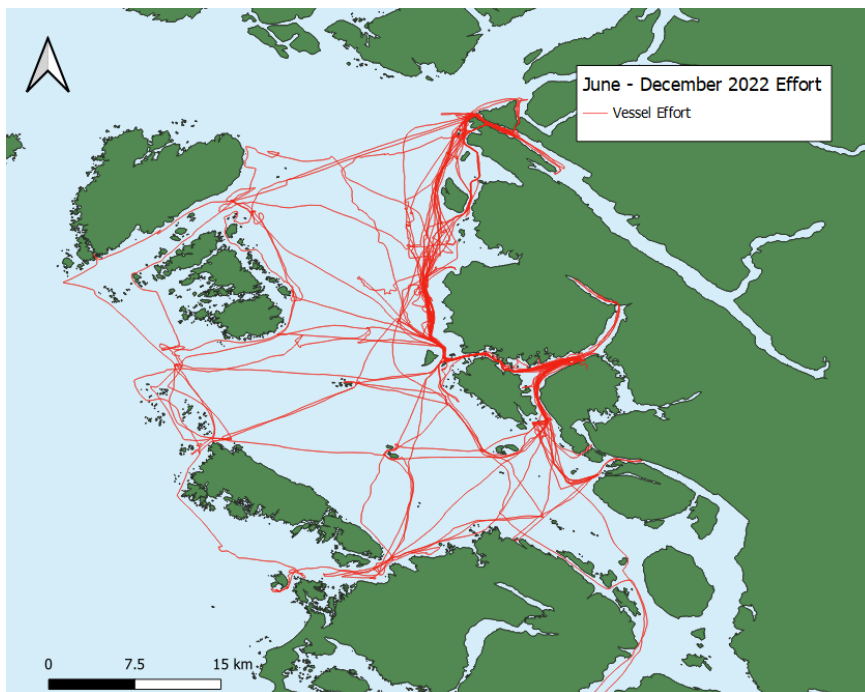


Figure 1. Map of field season effort conducted on research vessel "*Tsitika*" from June-December 2022.



# WHALES | THE OCEAN'S SENTINEL

## Humpback Whales of Chatham Sound: Habitat Use, diet, and distribution

North Pacific humpback whales generally migrate annually between high latitude summer feeding grounds and lower latitude calving grounds. During their migration and while on the calving grounds, they feed very little, making it critical for them to build up substantial fat reserves during the summer months. Like other baleen whales that filter small fish and krill from seawater, the feeding success of humpback whales depends on how successful they are at finding areas of abundant and high-quality prey. The waters of Chatham Sound to Dixon Entrance have one of the highest densities of humpback whales on the British Columbia coast. Factors underlying the particular importance of Chatham Sound for humpback whales are unknown, but likely related to the types, abundance, distribution, and density of prey in the area.

**The NCCRI has collected 9 years of consecutive data on humpback whales in Chatham Sound, which are still listed as 'Special Concern' under the Canadian Species at Risk Act (SARA).**

To date, the NCCRI has documented 380 individual whales within the study site. 46% of these individuals exhibit strong site fidelity in this region, particularly from the months of July to October. During the 2022 field season, 158 individual humpback whales were identified. Of these 158 individuals, 61 had been previously identified within the study site in subsequent years and 97 were newly recorded individuals including three separate mother-calf pairs.

An unknown proportion of humpback whales that travel to Northern BC waters to feed in the summer stay long into the winter months. Presence during winter months was confirmed during seasonal nearshore marine mammal transects conducted between 2018-2021, however, much remains unknown about these winter aggregations. As a continuation of this study, a large, collaborative distance sampling effort led by DFO began in January 2023. By using a larger Coast Guard vessel as platform, surveys can cover a larger region of remote, Northern BC waters. Moving forward, seasonal surveys will be conducted and led by DFO, to better understand seasonal trends of cetaceans and to fill data gaps on variability in humpback whale migration.

Humpback whale research from this region is summarized in the regional catalogue '*Humpbacks of the North Coast - Chatham Sound & Surrounding Areas*' and includes known details such as seasonal presence, year first encountered, and known breeding grounds (e.g., Hawaii or Mexico). This research is incorporated into several larger studies including the Canadian Pacific Humpback Collaboration (CPHC) and SPLASH 2.0 – an updated population assessment of Northeast Pacific Humpback Whales. This year, Ocean Wise contributions have been acknowledged in the following reports:

*Spatial patterns in the migratory destinations of humpback whales (Megaptera novaeangliae) encountered in Canadian Pacific waters, based on photo-identification data and ocean basin-wide collaboration. (McMillan et al 2022)*

*(Almost) all the humpback whales of the North Pacific: A collaborative and comprehensive photo-ID dataset (Cheeseman et al. 2022, DOI: [10.21203/rs.3.rs-2294878/v1](https://doi.org/10.21203/rs.3.rs-2294878/v1))2022*

Collaboration with international researchers is essential due to the migratory nature of these animals and will lead us to better understand their conservation status of humpback whales in the greater North Pacific.





### Integrated Health Monitoring: Photogrammetry

Prey availability and quality is a key threat to many at-risk whale populations, affecting both population growth and reproductive success. In 2014, in response to this threat, Ocean Wise pioneered the Cetacean Body Condition Research Program. The program applies drone-based photogrammetry – using photographs to measure physical attributes of animals or features – to assess the health and nutritional status of cetacean populations in BC. This ground-breaking research uses aerial images collected by a vessel-launched drone to measure the body condition or ‘fatness’ of at-risk species, particularly killer whales and humpback whales, and can inform how annual changes in prey abundance influences body condition.



*Figure 2. Humpback whale BCYUKNC2022\_07 "Andes" in Chatham Sound. Photo taken using Inspire 2 DJI Quadcopter under DFO MML-18. Photo credit: Ocean Wise.*

In 2021, the NCCRI began to conduct drone-based operations on the North Coast to allow for a comparison between whales foraging in Chatham Sound and those foraging off of NE Vancouver Island. Fieldwork began in late July and continued until September 2022. During field operations, the team launched and retrieved the Remotely-Piloted Aircraft System (Quadcopter Drone) from RV Tsitika to obtain high-quality photographs directly above humpback whales (Figure 2). During this field season, flights were conducted over 14 individual humpbacks. High quality images will be analyzed in early 2023. From this analysis, we plan to develop a novel cetacean health assessment toolkit to explore body condition and pregnancy metrics for humpback whales in BC.

As part of a collaborative study with the Marine Research and Education Society (MERS) and Raincoast Conservation Foundation, images of humpback whales will also be analysed to determine the prevalence of non-lethal scars from entanglement and vessel collisions. To date, 23 humpback whales from the Chatham Sound study area will be included in this analysis. Preliminary findings from DFO and MERS suggest that around half of BC humpbacks have been entangled at least once. Aerial photos analysed for scar analysis will help us understand the impact of vessel-strikes and entanglement on humpback health and body condition.



## Environmental DNA

The NCCRI conducted two independent eDNA projects; the first was a continued effort to collect eDNA samples from the flukeprints of humpback whales, and the second was a pilot study titled “Stop, Look, Listen Stations” to further examine the detectability of cetacean DNA. Over the course of the year, two fecal and 179 eDNA samples were collected and processed. In 2022, we continued collecting eDNA water samples from individual fluke prints left by humpback whales to assess the feasibility and effectiveness of collecting DNA samples using this less invasive technique. Water was filtered *in-situ* using the Smith-Root eDNA Citizen Science Sampler, which greatly reduced the risk of contamination. By filtering the water, cells sloughed off the skin of a humpback whale can be collected and isolated from other DNA. To date, we have collected 97 humpback flukeprint samples and have worked through proof of principle of this protocol, successfully isolating humpback whale DNA in >30% of collected samples. Additionally, we are working to determine whether male cetacean DNA is present in each sample by using a protocol that amplifies the SRY gene found only on the Y chromosome. Details of this study are anticipated to be published in an open-access journal in the coming months (Robinson et al., 2023 *in prep*). Confirmation of individual ID and sex from eDNA samples can be validated through photo-ID and genetic samples, improving our understanding of variation between seasonal aggregations of humpback whales on the North Coast.

In 2022, we began the pilot “Stop, Look, Listen” study to test the feasibility of eDNA detectability at 15 fixed stations throughout Chatham Sound. These stations were sampled four times throughout field season, with two 500 ml samples collected at each station for a total 120 samples. Water samples were collected at 2 m below the surface while a hydrophone was deployed, and two observers surveyed visually for the presence of marine mammals (Figure 3).

All 120 of these samples have been sent to the lab for analysis to determine the presence/absence of cetacean DNA at each of the 15 stations over the four sampling periods. This study will also evaluate the efficacy of propylene glycol-based antifreeze as a non-toxic, unregulated alternative to 95% ethanol for eDNA preservation. However, the DNA will not be extracted and analysed from these samples until 2023.



Figure 3. NCCRI team collecting an eDNA sample *in situ*.

## Harbour Porpoise Acoustic Study

With support from the Prince Rupert Port Authority, we continued to collect passive acoustic monitoring data in two locations (Tuck Island and Porpoise Channel) throughout 2022. In September 2022, we published an [open access paper](#) on this multi-year study in *Frontiers in Marine Science* describing the strong seasonal and diel patterns in porpoise habitat use. Porpoise were found to be most active during periods of darkness, and seasonally between the months of May to July. This corresponds with high chlorophyll *a* concentration profiles, which indicates the presence of phytoplankton and prey in the area (Dracott et al., 2022). A second paper is in preparation that explores the potential impacts of vessel disturbance on porpoise foraging behavior using AIS data. This paper will be submitted in early 2023 for publication.





## CITIZEN SCIENCE

### Ocean Wise Sightings Network

Established in 2000, the Ocean Wise Sightings Network (OWSN), formerly known as the British Columbia Cetacean Sightings Network (BCCSN), is an Ocean Wise program that harnesses the conservation value of citizen science to collect detailed, relevant, and up-to-date information on the abundance and distribution of at-risk cetacean and sea turtle species. The OWSN is one of Canada's most enduring and successful citizen science programs. The OWSN recruits and trains coastal citizens and mariners to act as volunteer cetacean observers through educational presentations and other forms of public engagement that raise awareness about anthropogenic threats to at-risk marine mammal species. These volunteer observers then report their cetacean sightings to the OWSN in support of cetacean conservation.

As of 2022, the OWSN database includes over 320,000 verified sighting reports from more than 7,700 observers and shares this valuable information with government organizations, ENGOs, the maritime industry, and researchers. Over the past year, the OWSN has contributed sightings data to 21 external conservation research projects, engaged over 2,491 mariners and coastal citizens through its outreach efforts in the North Coast, and communicated with another 39,645 people through printed publications, news stories, newsletters, blogs, and website content.

The North Coast historically receives ~1,500 sightings per year. However, due to COVID-19, we documented a substantial decline in sighting reports beginning in 2020. This is likely due to travel restrictions, reduced tourism activities, and fewer people spending time on the water. In 2022, sightings in the north coast began to return to pre-covid numbers. The OWSN received 1,116 verified sighting reports from volunteer observers during the calendar year, a 47% increase from the previous year (Figure 4). This increase corresponds with the return of tourism and an increase in in-person, targeted outreach efforts to

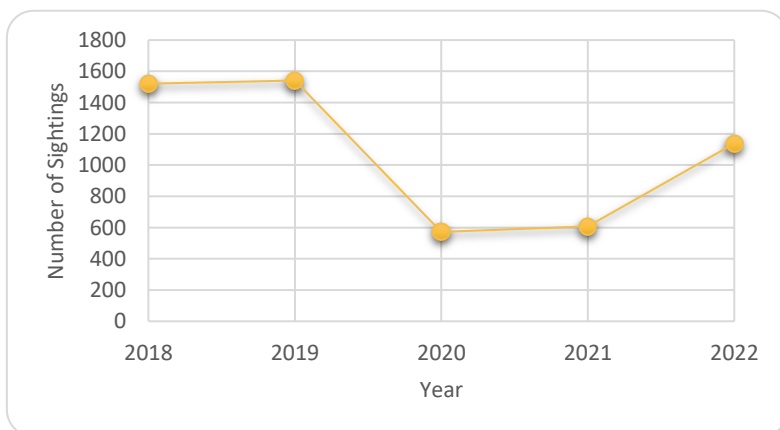


Figure 4. Total number of sighting reports received in the North Coast from 2018-2022.



engage observers (Figure 5). We hope to see this number continue to rise over the coming years, with our goal of reaching 1,500 sightings again in 2023.

Although most of the sightings on the North Coast in 2022 were reported from the Prince Rupert area, there has been an increase in sightings around Hartley Bay, the approaches to Kitimat and throughout the Inside Passage. Sightings were also reported in the waters around Haida Gwaii, but few sightings were reported in Hecate Strait, with the exception of the BC Ferries route from Prince Rupert to Skidegate. Humpback whales were the most frequently reported species to the OWSN in 2022 on the North Coast, accounting for 66% of total sighting reports received (747 sightings) (Appendix Table 1). Harbour porpoise were the second most frequently reported species (126 sightings), followed by killer whales (112 sightings), and Dall's porpoise (51 sightings). Grey whales, fin whales, Pacific white-sided dolphin, Risso's dolphins, sei whales, sperm whales and minke whales were also reported in 2022 (Figure 5).

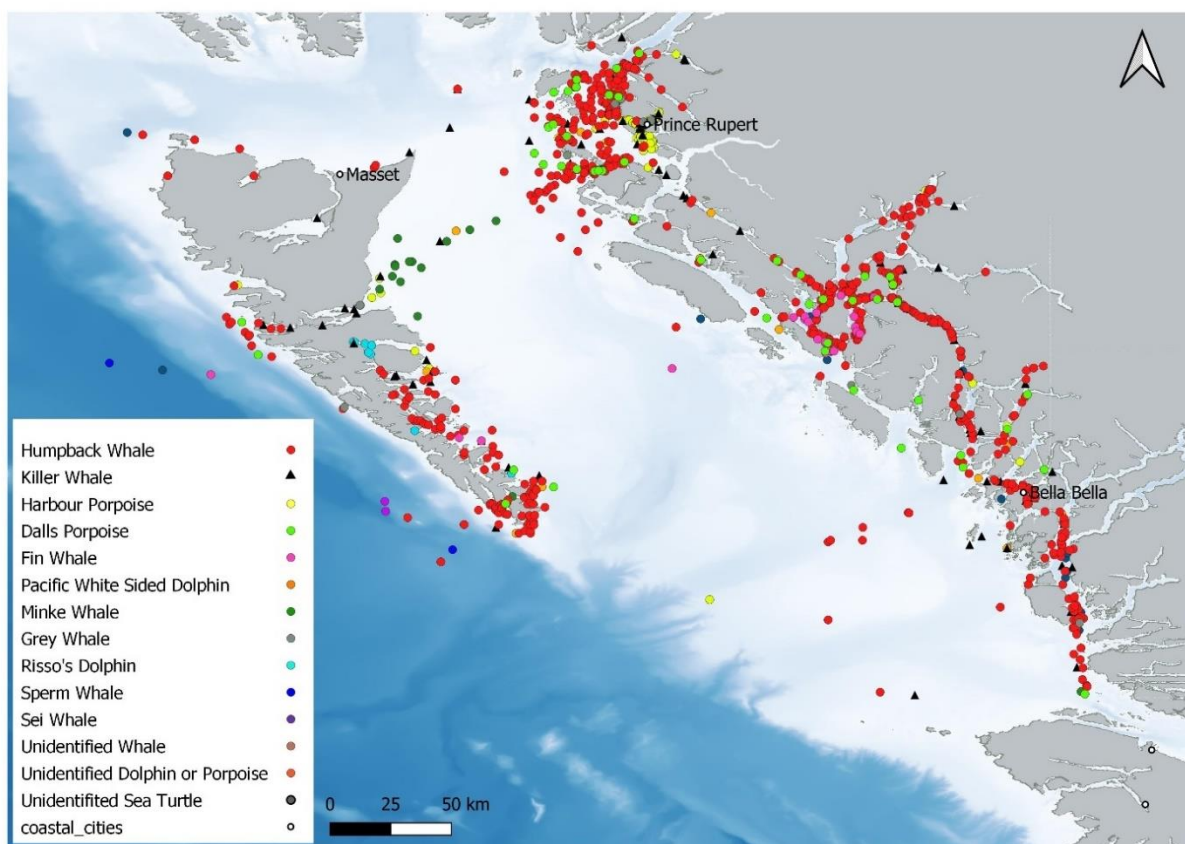


Figure 5. Cetacean sightings reported to the Ocean Wise Sightings Network in the North Coast of B.C. from January to December 2022. Sightings are opportunistic and not corrected for effort. Absence of sightings should not be considered absence of cetaceans. This map is not for further distribution.







## ACTIVATE TOOLS THAT MITIGATE THREATS TO MARINE MAMMALS

### The WhaleReport Alert System (WRAS)

The WhaleReport Alert System (WRAS) was created by Ocean Wise in partnership with the Port of Vancouver, the Port of Prince Rupert, and other industry and government partners. It was launched in 2019 as a tool to reduce the impacts of large commercial vessels on southern resident killer whales and other cetaceans in British Columbia's waters. From 2019-2022, the WRAS has delivered over 24,267 whale alerts to shipmasters from over 60 marine organizations. The WRAS delivers real-time alerts of nearby cetaceans to mariners of large commercial vessels. Designed to increase situational awareness on the water, the WRAS gives mariners the information they need to take mitigative action to avoid striking whales and to reduce acoustic and physical disturbance to vulnerable cetaceans. In 2022, there was a 27% decrease in the number of WRAS alerts sent on the North Coast compared to 2021; 152 WRAS alerts were sent to mariners operating on the North Coast, primarily in areas with cellular service. These alerts included species listed as at-risk under Canada's Species at Risk Act (SARA), including 104 alerts of humpback whales, 45 alerts of killer whales, and 3 alerts of grey whales (Figure 6).

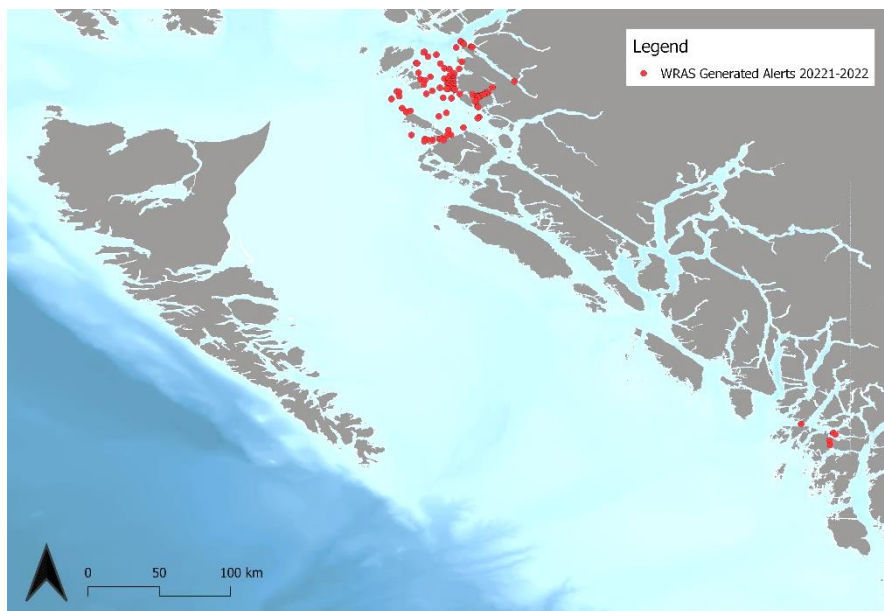


Figure 6. WRAS Alerts generated on the North Coast in 2022 (N=152)





## WRAS Updates

In response to the decrease in WRAS alerts seen on the North Coast in 2022, considerable efforts were made to increase the amount of real time information provided to the WRAS and change the platform from which mariners receive WRAS alerts:

- 1) Ocean Wise has partnered with JASCO Applied Sciences to use real-time automated detections of whales (humpbacks and killer whales) from their Underwater Listening Station (hydrophone) in Boundary Pass. These automated detections will provide more consistent WRAS alerts at times of poor visibility and at times when there are few observers on the water. Although the 2022 pilot project is focused solely on the integration of the JASCO Underwater Listening Station, other hydrophone providers have been involved in a technical working group to help guide the development of the project. The successful connection of the JASCO Underwater Listening Station to the WRAS will create a blueprint for integration of other hydrophones in remote areas such as the North Coast. We are currently in the final stages of this project, and detections from JASCO's Underwater Listening Station are expected to generate WRAS alerts by March 2023.
- 2) Ocean Wise has created a data sharing agreement with Acartia Data Cooperative to incorporate real-time visual detections from the WA State-based Acartia Data Cooperative (including Whale Alert app, Cascadia web app) to generate WRAS alerts. Whale Alert is a widely used method of reporting sightings Southeastern Alaska as well as in Washington State, and the incorporation of this real-time data will likely result in an increase in WRAS alerts in the transboundary waters of the North Coast. As well, the integration of Acartia data involved the creation of a general WRAS Application Programming Interface (API) which can be used to ingest real-time data from numerous other sightings apps as they become available.
- 3) To address the limitations of sending WRAS alerts via mobile phone (lack of reception, restricted usage), which is of particular concern on the North Coast, Ocean Wise is continuing to work with the Canadian Coast Guard to establish a method to send WRAS alerts to large ships via the Coast Guard's Automatic Identification System (AIS). This project has been approved at the federal level; unfortunately, however, we are experiencing delays due to the prioritization of a radar replacement project on the West Coast. We expect to pilot the delivery of WRAS alerts via AIS by December 2023.

## WRAS Training and Engagement

A total of 8 WRAS training and engagement sessions were hosted in BC, reaching a total of 392 participants. A detailed list of sessions can be viewed in the Appendix, Table 2. A total of 49 new WRAS user accounts were created for groups/individuals, 18 of which operate on the North Coast.

## WRAS Working Group Meetings

Ocean Wise established a WRAS Advisory Committee in 2021 to provide strategic advice to Ocean Wise for the ongoing sustainable operations, future planning, and funding of the WRAS. The WRAS Advisory Committee is composed of individuals who have marine mammal, shipping, and/or vessel operations expertise from various sectors and share the common goal of improving, refining, and promoting the WRAs to reduce vessel-associated threats to at-risk cetaceans in both BC and WA State. In 2022, Ocean Wise held two WRAS Advisory Committee Meetings. The objectives of these meetings were to:



- A) Receive regular updates from the Canadian and US Coast Guard on the integration of WRAS Alerts into AIS
- B) Discuss integration of acoustic and visual whale detections into the WRAS

A technical subcommittee of mariners, acoustics experts, and hydrophone providers was formed guide implementation of acoustic detections into the WRAS, including the development of data acceptance settings and visualization of data in the WRAS. In the first meeting, held on February 22<sup>nd</sup>, it was determined that a tiered approach for integration of different hydrophone natures, as the data becomes available in real time, was the best way forward. JASCO's Boundary Pass Listening Station was identified as the hydrophone array that was best suited for integration into the WRAS at this time. Other hydrophone providers that are not capable of sending real time detections at this time were included in the technical subcommittee in order to participate in the construction of a framework that will guide the integration of JASCO's data, as well as other hydrophone data as it becomes available. This will streamline the process of integration of their data once it becomes available as it will ensure that all parties are able to provide the processing steps and outputs required for the WRAS. On August 29<sup>th</sup>, 2022, a second meeting was held to:

- A) Provide an overview of the WRAS and JASCO's systems
- B) Determine an appropriate confidence level for an acoustic detection required to generate a WRAS alert
- C) Discuss how the data should be visualized on the WRAS
- D) Identify next steps.

In order to provide an update on the WRAS project to North Coast mariners, we distributed a WRAS North Coast Newsletter to 32 mariners in March 2022. This newsletter provided general WRAS updates such as a summary of 2021 alerts on the North Coast and WRAS enhancements. Along with WRAS updates, the newsletter included a link to a Mariners Survey which helped to identify the specific needs of mariners on the North Coast and address any concerns that needed to be considered and addressed before moving forward with WRAS integration with AIS. This feedback was incorporated into a briefing note that was created by the Canadian Coast Guard to show support for the advancement of the AIS project.

### Next Steps

In 2023, we plan to:

- 1) Create WRAS alerts from real-time automated detections of whales (humpbacks and killer whales) from JASCO's Boundary Pass Listening Station. These automated detections will provide more consistent WRAS alerts at times of poor visibility and at times when there are few observers on the water.
- 2) Incorporate real-time visual detections from the WA State-based Acartia Data Cooperative (including Whale Alert app, Cascadia web app) to generate WRAS alerts.
- 3) Establish a method to send WRAS alerts via Area Specific Messaging (ASMs) using the Canadian Coast Guard's AIS.
- 4) Update the WhaleReport user interface to streamline the process of reporting sightings in real time (Appendix Figure 1). By streamlining the process of reporting and making the app more user-friendly, we anticipate that more coastal community members will be able to report sightings in real time, thus bolstering the number of WRAS alerts.





## EMPOWERING COMMUNITY CONTRIBUTIONS TO RESEARCH AND STEWARDSHIP

### Education and Outreach

The NCCRI conducted a variety of outreach activities in 2022 using both in-person and online platforms. Over 50 training sessions, education presentations, and events were held engaging 2,400 people on the North Coast. These outreach sessions focused on cetacean research, citizen science, and marine conservation. Some of our education and outreach activities this past year included one shoreline clean-up, 32 dock talks (Figure 7), one high school presentation, two online sport fishing presentations, one presentation to the Dodge Cove community, eight training presentations to local organizations in Prince Rupert and Haida Gwaii, connecting with eight fishing lodges, and three new Whale Trail signs, one at Rushbrook Harbour and one at MK Bay Marina in Kitimat and one in Taaw Tldáaw (Tow Hill) in Haida Gwaii.

#### Targeted Boater Outreach on the North Coast

During the summer, outreach efforts focused predominantly on recreational boaters and sport fishers. The goal of this outreach was to create awareness of the cetacean diversity on the North Coast, educate boaters on how to safely navigate around whales and reduce physical and acoustic disturbance, and teach community members how to contribute to citizen science through the Ocean Wise Sightings Network.

During the summer of 2022 we focused on increasing our engagement in Kitimat and Haida Gwaii. We engaged 1,542 people at nine dock talks in Kitimat, 10 dock talks in Prince Rupert, and 13 dock talks in Haida Gwaii to help increase engagement in the number of real time sightings and alerts (Appendix, Table 3). In addition to in-person outreach events, we utilized social media as a tool to educate the public about regionally specific threats to marine mammals, using impactful imagery of local cetacean species to convey relevant research findings and promote educational events. We also shared North Coast WRAS statistics, such as the number of alerts sent out to commercial mariners as a result of real-time reports, to highlight the direct conservation outcomes of reporting sightings in real time and to inspire more community members to get involved.



Figure 7. NCCRI Coordinator Ashley engaging with sport fisherman at MK Bay Marina, Kitimat.





## Outreach Packages

In addition to materials distributed through in-person events, the NCCRI also distributed materials via outreach packages sent to various organizations, centres, and lodges with key connections to targeted boater groups. In 2022, a total of 38 outreach packages were delivered to bait shops, lodges, and other organizations. Over 930 outreach materials were delivered through this method, consisting of approximately 120 sports fisher guides, 452 BCCSN brochures, seven posters, 174 cetacean identification sheets, 57 pocket identification guides, 110 Be Whale Wise resources, and 11 reporting and documenting depredation sheets were distributed.

## The Whale Trail BC

The [Whale Trail BC](#) is a network of sites where visitors can view marine mammals from shore-based locations along the Pacific Coast. Each sign highlights local marine mammal species in the area, informs recreational boaters of the Be Whale Wise guidelines and marine mammal regulations, and directs visitors to report their sightings to the OWSN via WhaleReport. In 2022 we continued expansion of the Whale Trail in the North Coast installing three new sites: Rushbrook boat launch, Prince Rupert (Kxeen), MK Bay Marina, Kitimaat and Tow (Taaw Tldáaw), Haida Gwaii, two additional signs were installed at the BC Ferry terminals in Prince Rupert and Skidegate.



Figure 8. Newly installed Rushbrook WhaleTrail sign displaying 100m distance from the sign to the post as a calibration tool for boaters.

This past year, the NCCRI mentored an Ocean Bridge Direct Action placement, who showcased 15 of the BC WhaleTrail sites through a social media campaign to gain public awareness of these incredible locations. The goal was to highlight land-based whale watching and inspire stewardship amongst travellers through contribution of data to the OWSN. Videos can be viewed on the [Ocean Wise Research](#) Instagram page under Whale Trail BC reels.



Figure 9. Marine Mammal minimum approach distance for marine mammals' calibration sign, newly installed on the Rushbrook Marina breakwater.

In collaboration with DFO - Prince Rupert, a new Rushbrook Whale Trail sign was installed that included drone and distance regulations with visual markers for boaters to comprehend a distance of 100 m (Figure 8). In addition to the Whale Trail sign, on-water distance calibration signs were installed on the Rushbrook Marina break water to display the minimum approach distance for marine mammals and help boaters conceptualize 100 m and 200 m distances when on the water (Figure 9). These signs are visible both exiting the marina and launching from the boat ramp.







### Committees and Collaboration

Building and maintaining strong collaborative partnerships on the North Coast is essential to further the work of the NCCRI and contribute to the conservation of marine species and resources in this region. As recognized professionals in the marine conservation and research field in this region, NCCRI staff are active members of the following committees on an on-going basis:

- Port Environmental Stewardship Committee
- North Coast Integrated Advisory Committee
- Marine Protected Area Network (Northern Shelf Bioregion) North Coast Ocean Advisory Committee
- The Canadian Pacific Humpback Collaboration and SPLASH 2.0
- The North Coast Ecology Centre Society

NCCRI continues to maintain strong working relationships with the BC Marine Mammal Response Network, Fisheries and Oceans Canada Conservation and Protection - North Coast staff, Fisheries and Oceans Canada Coastal Environmental Baseline Program, BC Parks, Parks Canada (Gwaii Haanas National Parks Reserve), Council of Haida Nation, the Prince Rupert Port Authority, Metlakatla Stewardship Society, Lax Kw'alaams Fisheries, Marine Education and Research Society, and Coast Mountain Community College.

### Training and Conferences

#### *UBC Marine Mammal Symposium*

The UBC Marine Mammal Symposium brings together marine mammal researchers from all over BC. In November 2022, NCCRI staff attended this symposium and presented on the harbour porpoise acoustics research that has been conducted and published. This event provided great networking opportunities. For most, this was the first in-person attendance at a symposium or conference since COVID-19.

#### *Coastal Environmental Baseline Program Workshop and Symposium*



The NCCRI receives funding from Fisheries and Oceans Canada through the Coastal Environmental Baseline Program to conduct research. This year, a workshop/symposium was held in Ottawa, Ontario for groups to present on their findings from the last five years and to attend workshop sessions held by the St. Lawrence Global Observatory (SLGO). This was a great opportunity for Canada-wide networking and to present on the research conducted since 2018.

### DFO Marine Mammal Response Training

This past year, NCCRI staff attending the DFO Marine Mammal Response Training in August and October 2022 in Prince Rupert and Haida Gwaii. Staff were trained on how to best assist and handle a small cetacean stranding event and how to deter cetaceans during an oil spill occurrence (Figure 10). A necropsy on a striped dolphin was led by Dr. Stephen Raverty in Prince Rupert.



Figure 10. NCCRI staff Amy Migneault and Ashley Bachert attending stranding training session (left) and assisting with oil spill deterrence training with Paul Cotrell (right).

This training came at a very prudent time, as several cetaceans were found deceased along the shores of BC in 2022 (Figure 11). At least two grey whales and seven humpback whales have washed up on BC shores in 2022, the majority of which were found during the fall. Shanti Thurber, the Haida Gwaii Coordinator, assisted with several of the whales' necropsies that occurred in Haida Gwaii. Shanti Thurber wrote a blog on her necropsy experience with one of the deceased whales found during the summer of 2022, which can be found [here](#).



Figure 11. Grey Whale found washed up on Haida Gwaii (left), Humpback Whale found floating in Chatham Sound (right) both whales were discovered fall of 2022.



## Upcoming Work

In 2023, the NCCRI will continue to lead research to bridge data deficiencies on local, at-risk cetacean species and co-develop novel, non-invasive monitoring approaches. During the upcoming field season, we will begin a new ecosystem-based eDNA study which is a novel approach to characterizing fish, marine mammal, and sea turtle communities simultaneously in BC waters. Specifically, we will be able to determine prey assemblages of key species such as humpbacks and harbour porpoises in areas of known importance near the Port of Prince Rupert. The NCCRI will also build on previously established research with an assessment of cetacean spatial and seasonal habitat use, targeted environmental DNA (eDNA) collection, and aerial ID image collection using an UAV to assess body condition, prey availability and overall whale health. Ongoing humpback research will support the completion of a population assessment of Northeast Pacific humpback whales through SPLASH 2.0 and the CPHC.

The NCCRI will also continue to empower the public on the North Coast to actively participate in marine research and conservation. We will encourage participation in citizen science projects such as the Ocean Wise Cetacean Sightings Network and recommend ways that the community can take action to reduce their impact. We will continue to target outreach in regions with fewer sightings and WRAS alerts, primarily in the waters surrounding Haida Gwaii and Kitimat, and will continue to modify the WRAS and WhaleReport to improve their utility on the North Coast.



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## Appendix

*Table 1 - Cetacean sightings reported to the Ocean Wise Sightings Network on the North Coast region in 2022.*

Species	Number of Sighting Reports
Humpback whale	747
Killer whale	112
Harbour porpoise	126
Dall's porpoise	51
Fin whale	23
Pacific white-sided dolphin	17
Minke whale	15
Grey whale	11
Risso's dolphin	9
Sperm whale	3
Sei whale	2
<b>Total</b>	<b>1116</b>

*Table 2 - Summary of WRAS Training Events in 2022.*

Date	Training Event	Number of Attendees
March 2022	WRAS Advisory Committee Meeting	10
May 2022	Training with Blackball Transport (Coho Ferry)	2
August 2022	Mariner training with Quiet Sound	144
July 2022	Masset DFO and Haida Fisheries Cetacean ID and WRAS training	4
September 2022	Ocean Wise Open House – Community outreach with WRAS	200
November 2022	WRAS Advisory Committee Meeting	12
February 2022	WRAS Technical Subcommittee Meeting 2	8
March 2022	WRAS Technical Subcommittee Meeting 2	12
<b>Total</b>		<b>392</b>



Table 3 – Outreach summary of Dock Talks in 2022.

Date	Dock Talk Location	Number of Attendees
May 2022	Prince Rupert – Rushbrook Whale Trail Launch	20
May 2022	Prince Rupert – Rushbrook	32
June 2022	Prince Rupert – Rushbrook	16
June 2022	Prince Rupert – Rushbrook	30
June 2022	Prince Rupert – Port Edward	23
June 2022	Prince Rupert – Rushbrook	35
July 2022	Kitimat – Canada Day Fair	180
July 2022	Kitimat – MK Bay Marina	47
July 2022	Kitimat – MK Bay Marina	51
July 2022	Kitimat – MK Bay Marina	33
July 2022	Kitimat – MK Bay Marina	53
July 2022	Haida Gwaii – Masset	64
July 2022	Haida Gwaii – Daajing Giids	34
July 2022	Haida Gwaii – Masset	58
July 2022	Prince Rupert – Rushbrook	62
July 2022	Haida Gwaii – Skidegate Days	70
July 2022	Haida Gwaii – Masset	56
July 2022	Haida Gwaii – Sanspit Logger Sports Day	47
July 2022	Haida Gwaii – Tlell Fall Fair	200
August 2022	Prince Rupert – Cow Bay Marina	50
August 2022	Haida Gwaii – Masset	73
August 2022	Haida Gwaii – Science Alive Presentation	17
August 2022	Prince Rupert – Cow Bay Marina	15
August 2022	Kitimat – MK Bay Marina	36
August 2022	Haida Gwaii – Science Alive Presentation	20
August 2022	Haida Gwaii – Masset	25
August 2022	Kitimat - MK Bay Marina	58
September 2022	Prince Rupert – Port Edward	16
September 2022	Haida Gwaii – Masset	60



September 2022	Kitimat – MK Bay Marina	32
September 2022	Kitimat – MK Bay Marina	28
September 2022	Haida Gwaii – Tlell Shoreline Cleanup	5
<b>Total</b>		<b>1555</b>

Figure 2. Proposed updates to the WhaleReport user interface.

